

WHAT IS CLAIMED IS:

1. A nail varnish composition comprising, in a cosmetically acceptable medium, at least one film-forming gradient copolymer comprising at least two different monomeric units, wherein the at least one film-forming gradient copolymer exhibits a mass polydispersity index (PI) of less than or equal to 2.5, , and wherein the composition is capable of forming a film exhibiting a rate of loss of weight of less than 1 mg/minute, when the film is subjected to abrasion produced with a Taber abrasion tester at 23°C.
2. The composition according to Claim 1, wherein the at least one film-forming gradient copolymer exhibits a mass polydispersity index (PI) ranging from 1.1 to 2.3.
3. The composition according to Claim 2, wherein the at least one film-forming gradient copolymer exhibits a mass polydispersity index (PI) ranging from 1.15 to 2.0.
4. The composition according to Claim 3, wherein the at least one film-forming gradient copolymer exhibits a mass polydispersity index (PI) ranging from 1.2 to 1.9.
5. The composition according to Claim 1, wherein the composition is capable of forming a film exhibiting a rate of loss of weight of less than 0.8 mg/minute, when the film is subjected to abrasion produced with the Taber abrasion tester at 23°C.
6. The composition according to Claim 5, wherein the composition is capable of forming a film exhibiting a rate of loss of weight of less than 0.6 mg/minute, when the film is subjected to abrasion produced with the Taber abrasion tester at 23°C.
7. The composition according to Claim 6, wherein the composition is capable of forming a film exhibiting a rate of loss of weight of less than 0.4 mg/minute,

when the film is subjected to abrasion produced with the Taber abrasion tester at 23°C.

8. The composition according to Claim 1, wherein the weight-average molecular mass of the at least one film-forming gradient copolymer ranges from 5,000 g/mol to 1,000,000 g/mol.

9. The composition according to Claim 8, wherein the weight-average molecular mass of the at least one film-forming gradient copolymer ranges from 5,500 g/mol to 800,000 g/mol.

10. The composition according to Claim 9, wherein the weight-average molecular mass of the at least one film-forming gradient copolymer ranges from 6,000 g/mol to 500,000 g/mol.

11. The composition according to Claim 1, wherein the number-average molecular mass of the gradient copolymer ranges from 5,000 g/mol to 1,000,000 g/mol. ,

12. The composition according to Claim 11, wherein the number-average molecular mass of the gradient copolymer ranges from 5,500 g/mol to 800,000 g/mol.

13. The composition according to Claim 12, wherein the number-average molecular mass of the gradient copolymer ranges from 6,000 g/mol to 500,000 g/mol.

14. The composition according to Claim 1, wherein the at least one film-forming gradient copolymer is such that all the polymer chains have at least one monomeric unit, M_i , for which, whatever the normalized position x on the polymer chain, there is a non-zero probability of encountering the monomeric unit M_i along the chain.

15. The composition according to Claim 1, wherein the at least one film-forming gradient copolymer is such that, on the adsorption chromatography (LAC) curve representing the proportion of polymers as a function of the elution volume, the difference ($V^{1/2}_{\max} - V^{1/2}_{\min}$) is less than or equal to 3.5, wherein " $V^{1/2}_{\min}$ " is the minimum value of

the elution volume at mid-height of the curve, and " $V^{1/2}$ max" is the maximum value of the elution volume at mid-height of the curve.

16. The composition according to Claim 15, wherein the difference ($V^{1/2}$ max - $V^{1/2}$ min) ranges from 1 and 2.8, wherein " $V^{1/2}$ min" is the minimum value of the elution volume at mid-height of the curve, and " $V^{1/2}$ max" is the maximum value of the elution volume at mid-height of the curve.

17. The composition according to Claim 16, wherein the difference ($V^{1/2}$ max - $V^{1/2}$ min) ranges from 1.2 to 2.5, wherein " $V^{1/2}$ min" is the minimum value of the elution volume at mid-height of the curve, and " $V^{1/2}$ max" is the maximum value of the elution volume at mid-height of the curve.

18. The composition according to Claim 1, wherein the at least one film-forming gradient copolymer comprises at least two different monomeric units, wherein the at least two different monomeric units are each present in an amount ranging from 1 to 99% by weight, relative to the total weight of the final copolymer.

19. The composition according to Claim 18, wherein the at least two different monomeric units are each present in an amount ranging from 2 to 98% by weight, relative to the total weight of the final copolymer.

20. The composition according to Claim 19, wherein the at least two different monomeric units are each present in an amount ranging from 5 to 95% by weight, relative to the total weight of the final copolymer.

21. The composition according to Claim 1, wherein the at least one film-forming gradient copolymer comprises at least one hydrophilic monomeric unit.

22. The composition according to Claim 21, wherein the at least one hydrophilic monomeric unit is present in an amount ranging from 1 to 99% by weight,

relative to the total weight of the copolymer.

23. The composition according to Claim 22, wherein the at least one hydrophilic monomeric unit is present in an amount ranging from 2 to 70% by weight, relative to the total weight of the copolymer.

24. The composition according to Claim 23, wherein the at least one hydrophilic monomeric unit is present in an amount ranging from 3 to 50% by weight, relative to the total weight of the copolymer.

25. The composition according to Claim 24, wherein the at least one hydrophilic monomeric unit is present in an amount ranging from 4 to 30% by weight, relative to the total weight of the copolymer.

26. The composition according to Claim 25, wherein the at least one hydrophilic monomeric unit is present in an amount ranging from 5 to 25% by weight, relative to the total weight of the copolymer.

27. The composition according to Claim 1, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit whose homopolymer has a T_g of less than or equal to 20°C..

28. The composition according to Claim 27, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit whose homopolymer has a T_g ranging from -150°C to 20°C.

29. The composition according to Claim 28, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit whose homopolymer has a T_g ranges from -130°C to 18°C.

30. The composition according to Claim 29, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit whose homopolymer

has a Tg ranging from -120°C to 15°C.

31. The composition according to Claim 27, wherein the at least one monomeric unit whose homopolymer has a Tg less than or equal to 20°C is present in an amount ranging from 1 to 99% by weight, relative to the total weight of the copolymer.

32. The composition according to Claim 31, wherein the at least one monomeric unit whose homopolymer has a Tg less than or equal to 20°C is present in an amount ranging from 20 to 90% by weight, relative to the total weight of the copolymer.

33. The composition according to Claim 32, wherein the at least one monomeric unit whose homopolymer has a Tg less than or equal to 20°C is present in an amount ranging from 30 to 85% by weight, relative to the total weight of the copolymer.

34. The composition according to Claim 33, wherein the at least one monomeric unit whose homopolymer has a Tg less than or equal to 20°C is present in an amount ranging from 50 to 75% by weight, relative to the total weight of the copolymer.

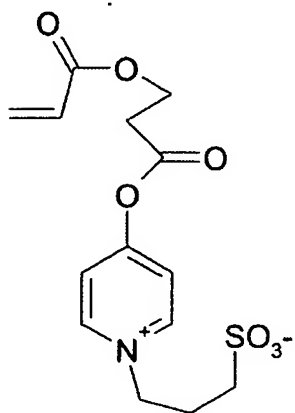
35. The composition according to Claim 21, wherein the at least one film-forming gradient copolymer comprises at least one hydrophilic monomeric unit chosen from:

- amino(C₁-C₄ alkyl) (meth)acrylate derivatives;
- N,N-di(C₁-C₄ alkyl)amino(C₁-C₆ alkyl)(meth)acrylamides;
- di(C₁-C₈ alkyl)allylamines;
- vinylamines;
- vinylpyridines;

and the acid salts and quaternized forms thereof;

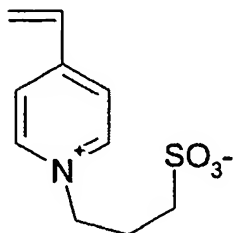
- ethylenic carboxylic acids;
- carboxylic anhydrides with at least one vinyl bond and the salts thereof;

- ethylenic sulphonic acids and the salts thereof;
- the potassium salts of 3-(acryloyloxy)propanesulphonic acid and the compounds of formula $\text{CH}_2=\text{CHCOOCH}_2\text{OCH}_2(\text{OH})\text{CH}_2\text{SO}_3^-\text{Na}^+$;
- amides of unsaturated carboxylic acids;
- hydroxyalkyl (meth)acrylates;
- (meth)acrylates of polyethylene glycol (5 to 100 EO) and of glycol, which are optionally substituted on their end functional group by a group chosen from alkyl, phosphate, phosphonate and sulphonate groups;
- alkoxyalkyl (meth)acrylates;
- polysaccharide (meth)acrylates;
- vinylamides;
- vinyl ethers;
- methacrylamidopropoxytrimethylammonium betaine;
- N,N-dimethyl-N-methacryloyloxyethyl-N-(3-sulphopropyl)ammonium betaine;
- 3-methacryloylethoxycarbonylpyridinium;
- the compound of formula:



and

- 4-vinylpyridiniumsulphopropyl betaine of formula:



36. The composition according to Claim 35, wherein the amino(C₁-C₄ alkyl) (meth)acrylate derivatives are chosen from N,N-di(C₁-C₄ alkyl)amino(C₁-C₆ alkyl) (meth)acrylates.

37. The composition according to Claim 36, wherein the N,N-di(C₁-C₄ alkyl)amino(C₁-C₆ alkyl) (meth)acrylates are chosen from N,N-dimethylaminoethyl methacrylate (MADAME) and N,N-diethylaminoethyl methacrylate (DEAMEA).

38. The composition according to Claim 35, wherein the N,N-di(C₁-C₄ alkyl)amino(C₁-C₆ alkyl)(meth)acrylamides are chosen from N,N-dimethylacrylamide, N,N-dimethylaminopropylacrylamide (DMPAA) and N,N-dimethylaminopropylmethacrylamide (DMPMA).

39. The composition according to Claim 35, wherein the di(C₁-C₈ alkyl)allylamines are chosen from dimethyldiallylamine.

40. The composition according to Claim 35, wherein the vinylpyridines are chosen from 2-vinylpyridine and 4-vinylpyridine.

41. The composition according to Claim 35, wherein the ethylenic carboxylic acids are chosen from mono- and dicarboxylic acids.

42. The composition according to Claim 41, wherein the mono- and dicarboxylic acids are chosen from acrylic acid, methacrylic acid, crotonic acid, itaconic acid, fumaric acid and maleic acid.

43. The composition according to Claim 35, wherein the carboxylic anhydrides with at least one vinyl bond are chosen from maleic anhydride.

44. The composition according to Claim 35, wherein the ethylenic sulphonic acids are chosen from styrenesulphonic acid, acrylamidopropanesulphonic acid, vinylbenzoic acid and vinylphosphonic acid.

45. The composition according to Claim 35, wherein the amides of unsaturated carboxylic acids are chosen from acrylamide, methacrylamide, and the N-substituted derivatives thereof.

46. The composition according to Claim 45, wherein the N-substituted derivatives of acrylamide and methacrylamide are chosen from N-(C₁-C₄ alkyl)(meth)acrylamides and N,N-di(C₁-C₄ alkyl)(meth)acrylamides.

47. The composition according to Claim 46, wherein the N-(C₁-C₄ alkyl)(meth)acrylamides are chosen from as N-methylacrylamide.

48. The composition according to Claim 46, wherein the N,N-di(C₁-C₄ alkyl)(meth)acrylamides are chosen from N,N-dimethylacrylamide.

49. The composition according to Claim 35, wherein the hydroxyalkyl (meth)acrylates are chosen from those whose alkyl group(s) comprise from 2 to 4 carbon atoms.

50. The composition according to Claim 49, wherein the hydroxyalkyl (meth)acrylates having alkyl group(s) comprising from 2 to 4 carbon atoms are chosen from hydroxyethyl (meth)acrylate.

51. The composition according to Claim 35, wherein the (meth)acrylates of polyethylene glycol (5 to 100 EO) and of glycol which are optionally substituted on their end functional group by a group chosen from alkyl, phosphate, phosphonate and sulphonate

groups are chosen from glyceryl acrylate, methoxypolyethylene glycol (8 and 12 EO) (meth)acrylate and hydroxypolyethylene glycol (meth)acrylate.

52. The composition according to Claim 35, wherein the alkoxyalkyl (meth)acrylates are chosen from ethoxyethyl (meth)acrylate.

53. The composition according to Claim 35, wherein the polysaccharide (meth)acrylates are chosen from sucrose acrylate.

54. The composition according to Claim 35, wherein the vinylamides are chosen from vinylacetamides.

55. The composition according to Claim 54, wherein the vinylacetamides are chosen from cyclic vinylamides.

56. The composition according to Claim 55, wherein the cyclic vinylamides are chosen from vinyl lactams.

57. The composition according to Claim 56, wherein the vinyl lactams are chosen from N-vinylpyrrolidone and N-vinylcaprolactam.

58. The composition according to Claim 35, wherein the vinyl ethers are chosen from vinyl methyl ether.

59. The composition according to Claim 35, wherein the at least one film-forming gradient copolymer comprises at least one hydrophilic monomeric unit chosen from N,N-dimethylaminoethyl methacrylate (MADAME), acrylic acid, methacrylic acid, crotonic acid, styrenesulphonic acid, acrylamidopropanesulphonic acid, dimethylaminopropylmethacrylamide (DAPMA), styrenesulphonate, hydroxyethyl acrylate, glyceryl acrylate, ethoxyethyl methacrylate, ethoxyethyl acrylate, methoxypolyethylene glycol (8 and 12 EO) (meth)acrylate, hydroxypolyethylene glycol (meth)acrylate, N-vinylpyrrolidone, N-vinylcaprolactam, acrylamide and N,N-

dimethylacrylamide.

60. The composition according to Claim 21, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit chosen from C₁-C₄ alkyl (meth)acrylates which result in the production of (meth)acrylic acid after hydrolysis.

61. The composition according to Claim 60, wherein the C₁-C₄ alkyl (meth)acrylates which result in the production of (meth)acrylic acid after hydrolysis are chosen from tert-butyl (meth)acrylate and ethyl (meth)acrylate.

62. The composition according to Claim 27, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit whose homopolymer has a T_g of less than or equal to 20°C, chosen from:

- ethylenic hydrocarbons comprising 2 to 10 carbons;
- acrylates of formula CH₂=CHCOOR₁, wherein

R₁ is chosen from saturated and unsaturated, linear and branched, alkyl groups comprising 1 to 12 carbons,

provided that R₁ is not chosen from a tert-butyl group, and optionally comprising at least one heteroatom chosen from O, N, S and Si, wherein the alkyl group may optionally be substituted by at least one substituent chosen from hydroxyl groups and halogen atoms chosen from Cl, Br, I and F;

R₁ can also be chosen from -(R'')_x-(OC₂H₄)_n-OR''' groups, wherein

x is an integer chosen from 0 and 1,

R'' is chosen from saturated and unsaturated, linear and branched, alkyl groups comprising 1 to 12 carbons,

n is an integer ranging from 5 to 100, and

R''' is chosen from hydrogen atoms and CH₃;

- methacrylates of formula: $\text{CH}_2=\text{C}(\text{CH}_3)\text{-COOR}_2$, wherein

R_2 is chosen from saturated and unsaturated, linear and branched, alkyl groups comprising 3 to 12 carbons, and optionally, at least one heteroatom chosen from O, N, S and Si, and wherein the alkyl group can optionally be substituted by at least one substituent chosen from hydroxyl groups and halogen atoms chosen from Cl, Br, I and F;

R_2 can also be chosen from $-(\text{R}'')_x(\text{OC}_2\text{H}_4)_n\text{-OR}'''$ groups, wherein

x is an integer chosen from 0 and 1,

R'' is chosen from saturated and unsaturated, linear and branched, alkyl groups comprising 1 to 12 carbons,

n is an integer ranging from 5 to 100, and

R''' is chosen from hydrogen atoms and CH_3 ;

- N- and N,N-substituted derivatives of unsaturated $\text{C}_1\text{-C}_{12}$ carboxylic acid amides;

- vinyl esters of formula: $\text{R}_3\text{-CO-O-CH=CH}_2$, wherein R_3 is chosen from linear and branched alkyl groups comprising 2 to 12 carbons; and

- vinyl alkyl ethers wherein the alkyl comprises 1 to 12 carbons.

63. The composition according to Claim 62, wherein the ethylenic hydrocarbons comprising 2 to 10 carbons are chosen from ethylene, isoprene and butadiene.

64. The composition according to Claim 62, wherein the N- and N,N-substituted derivatives of unsaturated $\text{C}_1\text{-C}_{12}$ carboxylic acid amides are chosen from N-($\text{C}_1\text{-C}_{12}$ alkyl)(meth)acrylamides.

65. The composition according to Claim 62, wherein the N-($\text{C}_1\text{-C}_{12}$ alkyl)(meth)acrylamides are chosen from N-octylacrylamide.

66. The composition according to Claim 62, wherein the vinyl esters of

formula: $R_3\text{-CO-O-CH=CH}_2$, are chosen from vinyl propionate, vinyl butyrate, vinyl ethylhexanoate, vinyl neononanoate and vinyl neododecanoate;

67. The composition according to Claim 62, wherein the vinyl alkyl ethers; wherein the alkyl comprises 1 to 12 carbons, are chosen from methyl vinyl ether and ethyl vinyl ether.

68. The composition according to Claim 27, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit, whose homopolymer has a T_g of less than or equal to 20°C , chosen from:

- isoprene and butadiene;
- methyl acrylate, ethyl acrylate, isobutyl acrylate, n-butyl acrylate, ethylhexyl acrylate, methoxyethyl acrylate, ethoxyethyl acrylate and hydroxypolyethylene glycol acrylate;
- ethoxyethyl methacrylate, hexyl methacrylate, ethylhexyl methacrylate and hydroxypolyethylene glycol methacrylate;
- N-($\text{C}_6\text{-C}_{12}$ alkyl)(meth)acrylamides;
- vinyl esters of formula: $R_3\text{-CO-O-CH=CH}_2$, wherein R_3 is chosen from linear and branched alkyl groups comprising 6 to 12 carbons.

69. The composition according to Claim 68, wherein the N-($\text{C}_6\text{-C}_{12}$ alkyl)(meth)acrylamides are chosen from N-octylacrylamide.

70. The composition according to Claim 68, wherein the vinyl esters of formula: $R_3\text{-CO-O-CH=CH}_2$ are chosen from vinyl neononanoate and vinyl neododecanoate.

71. The composition according to Claim 1, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit whose homopolymer has a T_g greater than or equal to 20°C .

72. The composition according to Claim 71, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit whose homopolymer has a T_g greater than or equal to 30°C.

73. The composition according to Claim 72, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit whose homopolymer has a T_g greater than or equal to 50°C.

74. The composition according to Claim 71, wherein the at least one monomeric unit whose homopolymer has a T_g greater than or equal to 20°C is present in the composition in an amount ranging from 1 to 99% by weight, relative to the total weight of the copolymer.

75. The composition according to Claim 74, wherein the at least one monomeric unit whose homopolymer has a T_g greater than or equal to 20°C is present in the composition in an amount ranging from 10 to 80% by weight, relative to the total weight of the copolymer.

76. The composition according to Claim 75, wherein the at least one monomeric unit whose homopolymer has a T_g greater than or equal to 20°C is present in the composition in an amount ranging from 15 to 70% by weight, relative to the total weight of the copolymer.

77. The composition according to Claim 76, wherein the at least one monomeric unit whose homopolymer has a T_g greater than or equal to 20°C is present in the composition in an amount ranging from 25 to 50% by weight, relative to the total weight of the copolymer.

78. The composition according to Claim 71, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit whose homopolymer

has a Tg greater than or equal to 20°C chosen from:

- vinyl compounds chosen from groups of formula: $\text{CH}_2=\text{CH-R}_4$, wherein

R_4 is chosen from a hydroxyl group; an $-\text{NH-C(O)-CH}_3$ group; an $-\text{OC(O)-CH}_3$ group; a C_3 to C_8 cycloalkyl group; a C_6 to C_{20} aryl group; a C_7 to C_{30} aralkyl group (C_1 to C_4 alkyl group); a 4- to 12-membered heterocyclic group comprising at least one heteroatom chosen from O, N and S; and a heterocyclalkyl (C_1 to C_4 alkyl) group; wherein the cycloalkyl, aryl, aralkyl, heterocyclic and heterocyclalkyl groups can optionally be substituted by at least one substituent chosen from hydroxyl groups, halogen atoms and linear and branched C_1 to C_4 alkyl groups, wherein the C_1 to C_4 alkyl groups can optionally comprise at least one heteroatoms chosen from O, N, S and P, and further wherein the alkyl groups can optionally comprise at least one substituent chosen from hydroxyl groups, halogens chosen from Cl, Br, I and F atoms, and Si atoms;

- acrylates chosen from groups of formula $\text{CH}_2=\text{CH-COOR}_5$, wherein

R_5 is chosen from a tert-butyl group; C_3 to C_8 cycloalkyl groups; C_6 to C_{20} aryl groups; C_7 to C_{30} aralkyl groups (C_1 to C_4 alkyl groups); 4- to 12-membered heterocyclic groups comprising at least one heteroatom chosen from O, N and S; and heterocyclalkyl (C_1 to C_4 alkyl) groups;

wherein the cycloalkyl, aryl, aralkyl, heterocyclic and heterocyclalkyl groups can optionally be substituted by at least one substituent chosen from hydroxyl groups, halogen atoms and linear and branched C_1 to C_4 alkyl groups, wherein the C_1 to C_4 alkyl groups can optionally comprise at least one heteroatom chosen from O, N, S and P, and further wherein, the C_1 to C_4 alkyl groups can optionally be substituted by at least one substituent chosen from hydroxyl groups, halogens chosen from Cl, Br, I and F atoms, and Si atoms; and

- methacrylates chosen from groups of formula $\text{CH}_2=\text{C}(\text{CH}_3)\text{-COOR}_6$, wherein

R_6 is chosen from linear and branched C_1 to C_4 alkyl groups, wherein the C_1 to C_4 alkyl groups can optionally be substituted by at least one substituent chosen from hydroxyl groups, halogens chosen from Cl, Br, I and F, and Si atoms; a C_3 to C_8 cycloalkyl group; a C_6 to C_{20} aryl group; a C_7 to C_{30} aralkyl group (C_1 to C_4 alkyl group); a 4- to 12-membered heterocyclic group comprising at least one heteroatom chosen from O, N and S; and a heterocyclalkyl (C_1 to C_4 alkyl) group;

wherein the cycloalkyl, aryl, aralkyl, heterocyclic and heterocyclalkyl groups may optionally be substituted by at least one substituent chosen from hydroxyl groups, halogen atoms, and linear and branched C_1 to C_4 alkyl groups optionally comprising at least one heteroatom chosen from O, N, S and P, and wherein the C_1 to C_4 alkyl groups can be optionally substituted by at least one substituent chosen from hydroxyl groups and halogen atoms chosen from Cl, Br, I and F; and

- (meth)acrylamides of formula: $\text{CH}_2=\text{C}(\text{R}')\text{-CO-NR}_7\text{R}_8$, wherein,

R_7 and R_8 , which may be identical or different, are chosen from hydrogen atoms and linear and branched alkyl groups comprising 1 to 12 carbon atoms, and

R' is chosen from hydrogen and methyl.

79. The composition according to Claim 78, wherein the heterocyclalkyl (C_1 to C_4 alkyl) groups are chosen from furfuryl groups.

80. The composition according to Claim 78, wherein the linear and branched C_1 to C_4 alkyl groups can be chosen from methyl, ethyl, propyl and isobutyl groups.

81. The composition according to Claim 78, wherein the linear and branched alkyl groups comprising 1 to 12 carbon atoms can be chosen from n-butyl, t-butyl,

isopropyl, isohexyl, isooctyl and isononyl groups.

82. The composition according to Claim 71, wherein the at least one film-forming gradient copolymer comprises at least one monomeric unit, whose homopolymer has a T_g greater than or equal to 20°C, chosen from:

- furfuryl acrylate, isobornyl acrylate, tert-butyl acrylate, tert-butylcyclohexyl acrylate and tert-butylbenzyl acrylate;
- methyl methacrylate, n-butyl methacrylate, ethyl methacrylate and isobutyl methacrylate;
- styrene and styrenesulphonate;
- vinyl acetate and vinylcyclohexane.

83. The composition according to Claim 1, wherein the at least one film-forming gradient copolymer is present in the composition in an amount ranging from 0.1 to 60% by weight, relative to the total weight of the composition.

84. The composition according to Claim 83, wherein the at least one film-forming gradient copolymer is present in the composition in an amount ranging from 0.2 to 40% by weight, relative to the total weight of the composition.

85. The composition according to Claim 84, wherein the at least one film-forming gradient copolymer is present in the composition in an amount ranging from 1 to 35% by weight, relative to the total weight of the composition.

86. The composition according to Claim 85, wherein the at least one film-forming gradient copolymer is present in the composition in an amount ranging from 5 to 30% by weight, relative to the total weight of the composition.

87. The composition according to Claim 1, wherein the at least one film-forming gradient copolymer is present in the composition in a form chosen from the dissolved form and from dispersions.

88. The composition according to Claim 87, wherein the dissolved form comprises the at least one film-forming gradient copolymer dissolved in solvents chosen from water and organic solvents.

89. The composition according to Claim 88, wherein the dispersions are chosen from aqueous and organic dispersions.

90. The composition according to Claim 1, further comprising at least one constituent chosen from additional film-forming polymers, additional agents which are able to form a film, water, organic solvents, thickeners, coloring materials, fillers, spreading agents, wetting agents, dispersing agents, antifoaming agents, preservatives, UV screening agents, active principles, surfactants, moisturizing agents, fragrances, stabilizing agents, antioxidants, vitamins, trace elements, basifying agents, acidifying agents, and ceramides.

91. The composition according to Claim 1, wherein the composition is capable of forming a film, and wherein the film has a loss in gloss, after abrading the film for 10 seconds with the Taber abrasion tester, and the gloss being measured 1 hour after abrasion, of less than or equal to 14%.

92. The composition according to Claim 91, wherein the composition is capable of forming a film, and wherein the film has a loss in gloss, after abrading the film for 10 seconds with the Taber abrasion tester, and the gloss being measured 1 hour after abrasion, of less than or equal to 12%.

93. The composition according to Claim 92, wherein the composition is capable of forming a film, and wherein the film has a loss in gloss, after abrading the film for 10 seconds with the Taber abrasion tester, and the gloss being measured 1 hour after abrasion, of less than or equal to 8%.

94. The composition according to Claim 1, wherein the composition is

capable of forming a film having a Young's modulus ranging from 10 to 200 MPa.

95. The composition according to Claim 94, wherein the composition is capable of forming a film having a Young's modulus ranging from 10 to 100 MPa.

96. The composition according to Claim 95, wherein the composition is capable of forming a film having a Young's modulus ranging from 10 to 50 MPa.

97. The composition according to Claim 1, wherein the composition is provided in a form chosen from bases for varnishes, products for making up the nails, top coats to be applied to products for making up the nails, and products for the cosmetic care of the nails.

98. A cosmetic method for making up and/or caring for the nails, comprising applying to the nails a cosmetic composition comprising, in a cosmetically acceptable medium, at least one film-forming gradient copolymer comprising at least two different monomeric units, wherein the at least one film-forming gradient copolymer exhibits a mass polydispersity index (PI) of less than or equal to 2.5, and wherein the composition is capable of forming a film exhibiting a rate of loss of weight of less than 1 mg/minute, when the film is subjected to abrasion produced with a Taber abrasion tester at 23°C.